

## Claims

1. A media compression method comprising:  
obtaining a media signal to be communicated to a destination system;  
identifying a plurality of scenes within the media signal;  
automatically selecting different codecs from a codec library to respectively  
compress at least two of the scenes, wherein the codecs are automatically  
selected to produce a highest compression quality for the respective  
scenes according to a set of criteria without exceeding a target data rate;  
compressing the scenes using the automatically selected codecs; and  
delivering the compressed scenes to the destination system with an indication of  
which codec was used to compress each scene.
2. The method of claim 1, wherein the codecs are selected from the group  
consisting of discrete cosine transform (DCT) codecs, fractal codecs, and wavelet  
codecs.
3. The method of claim 1, wherein a first automatically selected codec comprises a  
discrete cosine transform (DCT) codec and a second automatically selected codec  
comprises a fractal codec.

4. The method of claim 1, wherein a first automatically selected codec comprises a discrete cosine transform (DCT) codec and a second automatically selected codec comprises a wavelet codec.
5. The method of claim 1, wherein automatically selecting further comprises:  
identifying a plurality of characteristics of a scene; and  
searching for a codec in the library that is associated with the identified characteristics of the scene.
6. The method of claim 5, wherein the characteristics are selected from the group consisting of motion characteristics and color characteristics.
7. The method of claim 6, wherein searching further comprises using an Artificial Intelligence (AI) system to locate a codec associated with the identified characteristics of a scene.
8. The method of claim 7, wherein the AI system comprises a neural network.
9. The method of claim 7, wherein the AI system comprises an expert system.
10. The method of claim 1, wherein automatically selecting further comprises:  
testing at least a subset of the codecs of the codec library on a scene; and

automatically selected the codec that produces a highest compression quality for the scene according to a set of criteria without exceeding the target data rate.

11. The method of claim 10, wherein testing further comprises:  
storing a baseline snapshot of the scene; and  
for each codec to be tested:  
compressing the scene at or below the target data rate using one of the  
codecs in the library;  
decompressing the scene using the same codec; and  
comparing the quality of the decompressed scene with the baseline  
snapshot according to the set of criteria.
12. The method of claim 11, wherein comparing further comprises comparing the quality according to a Peak Signal to Noise Ratio (PSNR).
13. The method of claim 11, wherein comparing further comprises comparing the quality according to a Just Noticeable Difference (JND) value.
14. The method of claim 11, further comprising:  
identifying a plurality of characteristics of a scene; and  
associating the identified characteristics of the scene with the automatically  
selected codec.

15. The method of claim 1, further comprising adjusting the target data rate in response to constraints of the destination system.

16. The method of claim 1, further comprising adjusting the target data rate in response to conditions of a transmission channel to the destination system.

17. The method of claim 1, further comprising adjusting the target data rate in response to a message from the destination system.

18. The method of claim 5, wherein searching further comprises searching for an association between the identified characteristics and a set of parameters to be used with the automatically selected codec;

wherein compressing further comprises compressing the scene using the  
automatically selected codec with the associated set of parameters; and  
wherein delivering further comprises delivering the compressed scene to the  
destination system with an indication of which codec and which set of  
parameters were used to compress the scene.

19. The method of claim 10, wherein testing further comprises testing codecs of the codec library on the scene using different sets of parameters and automatically selecting the codec and set of parameters that produce a highest compression quality for the scene according to a set of criteria without exceeding the target data rate;

wherein compressing further comprises compressing the scene using the  
automatically selected codec with the automatically selected parameters;  
and  
wherein delivering further comprises delivering the compressed scene to the  
destination system with an indication of which codec and set of  
parameters were used to compress the scene.

20. The method of claim 19, further comprising:  
identifying a plurality of characteristics of a scene; and  
associating the automatically selected codec and the automatically selected set  
of parameters with the identified characteristics of the scene.

21. The method of claim 1, wherein identifying further comprises detecting a scene  
change in response to one frame of the media signal being sufficiently different from a  
previous frame.

22. The method of claim 1, wherein identifying further comprises detecting a scene  
change in response to the passage of a fixed period of time.

23. The method of claim 1, wherein delivering further comprises streaming each  
compressed scene to the destination system through a network.

24. The method of claim 1, wherein delivering further comprises storing each compressed scene on a storage medium.
25. The method of claim 1, wherein at least one codec in the library has an associated licensing cost, and wherein selecting further comprises automatically selecting the codec having the least licensing cost in response to two or more codecs producing substantially the same quality of compressed output for a scene.
26. A media compression method comprising:  
obtaining a media signal to be communicated to a destination system;  
automatically selecting different codecs from a codec library to compress at least two of the segments of the media signal, wherein the codecs are automatically selected to produce a highest compression quality for the respective segments without exceeding a target data rate;  
compressing the segments using the automatically selected codecs; and  
delivering the compressed segments to the destination system with an indication of which codec was used to compress each segment.
27. A media compression method comprising:  
providing a library of codecs, at least one codec having an associated licensing cost;  
obtaining a media signal to be communicated to a destination system;  
identifying a plurality of scenes within the media signal;

automatically selecting different codecs from the codec library to respectively compress at least two of the scenes, wherein the codecs are automatically selected to produce a highest compression quality at the lowest licensing cost for the respective scenes according to a set of criteria without exceeding a target data rate;

compressing the scenes using the automatically selected codecs; and

delivering the compressed scenes to the destination system with an indication of which codec was used to compress each scene.

28. A method for communicating a media signal comprising:
- selectively compressing at least two scenes of a media signal using different codecs from a codec library, wherein the codecs are automatically selected to produce a highest compression quality for the respective scenes according to a set of criteria without exceeding a target data rate;
- and
- delivering each compressed scene to a destination system with an indication of which codec was used to compress each scene.
29. A media decompression method comprising:
- receiving a media signal comprising a first scene compressed using a first codec and a second scene compressed using a second codec, wherein the first and second codecs are automatically selected from a codec library based

on which codec produces a highest compression quality for each scene according to a set of criteria without exceeding a target data rate decompressing the first scene using the first indicated codec; and decompressing the second scene using the second indicated codec.

30. The method of claim 29, further comprising presenting the first and second decompressed scenes to a user.

31. A media compression system comprising:  
an input module to obtain a media signal to be communicated to a destination system;  
an identification module to identify a plurality of scenes within the media signal;  
a selection module to automatically select different codecs from a codec library to respectively compress at least two of the scenes, wherein the codecs are automatically selected to produce a highest compression quality for the respective scenes according to a set of criteria without exceeding a target data rate;  
a compression module to compress the scenes using the automatically selected codecs; and  
an output module to deliver the compressed scenes to the destination system with an indication of which codec was used to compress each scene.



32. The system of claim 31, wherein the codecs are automatically selected from the group consisting of discrete cosine transform (DCT) codecs, fractal codecs, and wavelet codecs.

33. The system of claim 31, wherein a first automatically selected codec comprises a block codec and a second automatically selected codec comprises a fractal codec.

34. The system of claim 31, wherein a first automatically selected codec comprises a block codec and a second automatically selected codec comprises a wavelet codec.

35. The system of claim 31, wherein the identification module is to identify a plurality of characteristics of a scene; and

wherein the selection module is to search for a codec in the library that is  
associated with the identified characteristics of the scene.

36. The system of claim 35, wherein the characteristics are selected from the group consisting of motion characteristics and color characteristics.

37. The system of claim 36, wherein the selection module comprises an Artificial Intelligence (AI) system to locate a codec associated with the identified characteristics of a scene.

38. The system of claim 37, wherein the AI system comprises a neural network.

39. The system of claim 37, wherein the AI system comprises an expert system.
40. The system of claim 31, wherein the selection module is to test at least a subset of the codecs of the codec library on a scene and automatically select the codec that produces a highest compression quality for the scene according to a set of criteria without exceeding the target data rate.
41. The system of claim 40, wherein the selection module is to store a baseline snapshot of the scene and, for each codec to be tested, have the scene compressed at or below the target data rate using one of the codecs in the library, have the scene decompressed using the same codec, and compare the quality of the decompressed scene with the baseline snapshot according to the set of criteria.
42. The system of claim 41, wherein the selection module is to compare the quality according to a Peak Signal to Noise Ratio (PSNR).
43. The system of claim 41, wherein the selection module is to compare the quality according to a Just Noticeable Difference (JND) value.
44. The system of claim 41, wherein the identification module is to identify a plurality of characteristics of a scene; and

wherein the selection module is to associate the identified characteristics of the scene with the automatically selected codec.

45. The system of claim 31, wherein the selection module is to adjust the target data rate in response to constraints of the destination system.

46. The system of claim 31, wherein the selection module is to adjust the target data rate in response to conditions of a transmission channel to the destination system.

47. The system of claim 31, wherein the selection module is to adjust the target data rate in response to a message from the destination system.

48. The system of claim 35, wherein the selection module is to search for an association between the identified characteristics and a set of parameters to be used with the automatically selected codec;

wherein the compression module is to compress the scene using the automatically selected codec with the associated set of parameters; and wherein the output module is to deliver the compressed scene to the destination system with an indication of which codec and which set of parameters were used to compress the scene.

49. The system of claim 40, wherein the selection module is to test the codecs of the codec library on the scene using different sets of parameters and automatically select

the codec and set of parameters that produce a highest compression quality for the scene according to a set of criteria without exceeding the target data rate;

wherein the compression module is to compress the scene using the  
automatically selected codec with the automatically selected parameters;  
and

wherein the output module is to deliver the compressed scene to the destination system with an indication of which codec and set of parameters were used to compress the scene.

50. The system of claim 49, wherein the identification module is to identify a plurality of characteristics of a scene; and

wherein the selection module is to associate the automatically selected codec and the automatically selected set of parameters with the identified characteristics of the scene.

51. The system of claim 31, wherein the identification module is to detect a scene change in response to one frame of the media signal being sufficiently different from a previous frame.

52. The system of claim 31, wherein the identification module is to detect a scene change in response to the passage of a fixed period of time.

53. The system of claim 31, wherein the output module is to stream each compressed scene to the destination system through a network.
54. The system of claim 31, wherein the output module is to store each compressed scene on a storage medium.
55. The system of claim 31, wherein at least one codec in the library has an associated licensing cost, and wherein the selection module is to automatically select the codec having the least licensing cost in response to two or more codecs producing substantially the same quality of compressed output for a scene.
56. A media compression system comprising:
- an input module to obtain a media signal to be communicated to a destination system;
  - a selection module to automatically select different codecs from a codec library to respectively compress at least two of the segments of the media signal, wherein the codecs are automatically selected to produce a highest compression quality for the respective segments without exceeding a target data rate;
  - a compression module to compress the segments using the automatically selected codecs; and
  - an output module to deliver the compressed segments to the destination system with an indication of which codec was used to compress each segment.

57. A media compression system comprising:
- a library of codecs, at least one codec having an associated licensing cost;
  - an input module to obtain a media signal to be communicated to a destination system;
  - an identification module to identify a plurality of scenes within the media signal;
  - a selection module to automatically select different codecs from the codec library to respectively compress at least two of the scenes, wherein the codecs are automatically selected to produce a highest compression quality at the lowest licensing cost for the respective scenes according to a set of criteria without exceeding a target data rate;
  - a compression module to compress the scenes using the automatically selected codecs; and
  - an output module to deliver the compressed scenes to the destination system with an indication of which codec was used to compress each scene.
58. A system for communicating a media signal comprising:
- a compression module to selectively compress at least two scenes of a media signal using different codecs from a codec library, wherein the codecs are automatically selected to produce a highest compression quality for the respective scenes according to a set of criteria without exceeding a target data rate; and

an output module to deliver each compressed scene to a destination system with an indication of which codec was used to compress each scene.

59. A media decompression system comprising:

an input module to receive a media signal comprising a first scene compressed using a first codec and a second scene compressed using a second codec, wherein the first and second codecs are automatically selected from a codec library based on which codec produces a highest compression quality for each scene according to a set of criteria without exceeding a target data rate; and

a decompression module to decompress the first scene using the first indicated codec and to decompress the second scene using the second indicated codec.

60. The system of claim 59, further comprising a presentation module to present the first and second decompressed scenes to a user.

61. A computer program product on a computer-readable medium, comprising:

program code for obtaining a media signal to be communicated to a destination system;

program code for identifying a plurality of scenes within the media signal;

program code for automatically selecting different codecs from a codec library to respectively compress at least two of the scenes, wherein the codecs are

automatically selected to produce a highest compression quality for the respective scenes according to a set of criteria without exceeding a target data rate;

program code for compressing the scenes using the automatically selected codecs; and

program code for delivering the compressed scenes to the destination system with an indication of which codec was used to compress each scene.

62. A media compression apparatus comprising:

means for obtaining a media signal to be communicated to a destination system;

means for identifying a plurality of scenes within the media signal;

means for automatically selecting different codecs from a codec library to

respectively compress at least two of the scenes, wherein the codecs are automatically selected to produce a highest compression quality for the respective scenes according to a set of criteria without exceeding a target data rate;

means for compressing the scenes using the automatically selected codecs; and

means for delivering the compressed scenes to the destination system with an indication of which codec was used to compress each scene.



63. A computer data signal embodied in a transmission medium, comprising:
- a code segment including instructions for obtaining a media signal to be communicated to a destination system;
  - a code segment including instructions for identifying a plurality of scenes within the media signal;
  - a code segment including instructions for automatically selecting different codecs from a codec library to compress at least two of the scenes, wherein the automatically selected codecs are to produce a highest compression quality for the respective scenes according to a set of criteria without exceeding a target data rate;
  - a code segment including instructions for compressing the scenes using the automatically selected codecs; and
  - a code segment including instructions for delivering the compressed scenes to the destination system with an indication of which codec was used to compress each scene.
64. A media compression method comprising:
- obtaining a media signal to be communicated to a destination system;
  - identifying a plurality of scenes within the media signal;
  - automatically selecting different codecs from a codec library to respectively compress at least two of the scenes, wherein the codecs are automatically selected to produce a highest compression quality for the respective scenes according to a set of criteria without exceeding a target data rate;

compressing the scenes using the automatically selected codecs;  
delivering the compressed scenes to the destination system with an indication of  
which codec was used to compress each scene;  
receiving each compressed scene and indication of a codec at the destination  
system;  
decompressing each compressed scene using the indicated codec; and  
presenting the decompressed scenes to a user of the destination system.